NJ Department of Education
Office of Educational Technology
Digital Learning NJ (DLNJ)

Standards 8.1 and 8.2: Moderate Level of Achievement across All Strands at Grade 8

Standard 8.1

Strand A	Strand C	Strand D	Strand E
WITH FREQUENT, CONSISTENT, REPEATED ASSISTANCE, STUDENT CAN • Demonstrate the ability to use digital tools to explore a well-defined real-world problem from a list supplied by the teacher, in order to develop an understanding of an issue. • Use a digital simulation to explore a well-defined real-world problem with a limited number of appropriate alternative solutions. • Create and format data for publication and reporting. • Demonstrate ability to manipulate, analyze and/or interpret data for particular purposes when the purpose and the data sources are provided by the teacher.	WITH FREQUENT, CONSISTENT, REPEATED ASSISTANCE, STUDENT CAN • Participate in collaborative digital learning activities with other students across geographies, to investigate and evaluate an issue • Publish findings to many audiences in multiple media and formats	WITH FREQUENT, CONSISTENT, REPEATED ASSISTANCE, STUDENT CAN • Usually demonstrate compliance with appropriate digital citation • Usually demonstrate understanding of fair use and creative commons • Usually can differentiate the credibility and accuracy of different digital content	WITH FREQUENT, CONSISTENT, REPEATED ASSISTANCE, STUDENT CAN • Use AT LEAST TWO search tools and filters to access multiple databases in order to find information relevant to the solution of a real world problem • Explain, describe and/or analyze the resulting data set and create a report of the results

Standard 8.2

Strand A	Strand B	Strand C	Strand D	Strand E
WITH FREQUENT, CONSISTENT, REPEATED ASSISTANCE, STUDENT CAN • Analyze the following elements of TWO technology systems *from a list provided by the teacher or approved by the teacher*: pros and cons, resource requirements and constraints, how the system solves some problem and how it can malfunction • Compare and contrast the current and future uses, resource requirements, and such other facts as financial/ethical/social costs, trade-offs *using a template or structure provided by the teacher*	WITH FREQUENT, CONSISTENT, REPEATED ASSISTANCE, STUDENT CAN • *With teacher approval*, choose a product that has had global impact and complete and present *to peers* an analysis that includes *a basic exploration* of each the following, *using a teacher-made outline or guided questions:* o Positive and negative consequence of use o Ethical issues of cost, environmental impact, ownership o Human and social impact o Sustainability o Research a technology specifically developed to offset the negative effects of another technology; provide a full explanation for peers o Identify a new technology that has resulted from the	WITH FREQUENT, CONSISTENT, REPEATED ASSISTANCE, STUDENT CAN • Each student should be able to evaluate the function, value and aesthetics of a product or system *(chosen from a list provided by the teacher)* and report on these characteristics from the perspectives of the user and the producer. The report [using guiding questions from the teacher] should demonstrate a basic command of the appropriate criteria used to evaluate technological products in these three areas (function, value, aesthetics). Add tradeoffs to higher levels	WITH FREQUENT, CONSISTENT, REPEATED ASSISTANCE, STUDENT CAN • Student demonstrates the ability to use the design process to design and create a product that addresses a real world problem *(teacher determined)* within the specific constraints supplied by the teacher. *[Note: At the moderate level, the constraints on the design process need to be very explicit and include defined attributes and resources, i.e., dimensions, materials, certain functions, etc.]* As part of the demonstration, student must explicitly identify the design constraints and trade-offs encountered in creating this product and also publish the steps required to use and	WITH FREQUENT, CONSISTENT, REPEATED ASSISTANCE, STUDENT CAN • Demonstrate a basic understanding of the historical impact of computers on human activity and, specifically, human careers, from lists supplied by the teacher • Demonstrate a basic understanding of the relationship[s] between hardware and software • Demonstrate ability to create an algorithm to solve a problem assigned by the teacher, using a specific (given) set of commands. Submit the algorithm for peer review. Demonstrate an understanding of appropriate programming vocabulary.

	demands, values and/or interests of specific individuals, businesses, industries and societies. o Demonstrate understanding of the different types of intellectual property: copyright, patent, trademarks and others • Analyze one specific example of the historical impact of the inclusion of a particular product in garbage; explain how that product might be upcycled, reused, or remanufactured into a new product. Analyze the following elements of TWO technology systems *from a list provided by the teacher or approved by the teacher*: pros and cons, resource requirements and constraints, how the system solves some problem and how it can malfunction • Compare and contrast the current and future uses, resource requirements, and such other facts as	• Each student should participate in a collaborative group that o Examines a malfunctioning system and identifies the step by step process to troubleshoot, evaluate and test options to repair the system o Researches and develops a product using the design process, data analysis and trends, and maintains a design log with annotated sketches to record the development cycle o At the moderate level, a student should demonstrate the ability to contribute to troubleshooting analysis and a basic understanding of the troubleshooting process and the ability to make	maintain this product, illustrating these steps with simple diagrams or images. At higher levels, students must identify potential failures and improvement, report results in a multimedia presentation, design portfolio or engineering notebook. Student must demonstrate basic understanding of the design process within these constraints. • Student demonstrates full understanding of science, engineering and mathematical validation principles as part of the design of a prototype that meets a STEM-based challenge. The student must publish the steps required to use and maintain this product, illustrating these steps with simple diagrams or images. The level of STEM-based challenge will determine the level of the score: a simple challenge will involve basic grade-level science, mathematics	

	financial/ethical/social costs, trade-offs *using a template or structure provided by the teacher*	some contribution to each of the following: data analysis, iterative development and evaluation of product features, models and sketches for the design log	and engineering principles; this would be a moderate level achievement. • Student demonstrates understanding of all of the following: o the resources and processes used in the production of a particular product and their environmental impact(teacher list of products for which entire production demand and impact is known and public; at the moderate level, products should be the result of relatively straightforward and simple production processes) o How the product could be modified to reduce resource demands and/or improve environmental impact	